UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,855	11/13/2001	Armin Amrhein	A34736 (071308.0257)	3772

7590 08/09/2005	EXAMINER
Andreas Grubert Baker Botts LLP One Shell Plaza 910 Louisiana Street Houston, TX 77002	KISS, ERIC B

ART UNIT	PAPER NUMBER
2192	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/056,855	AMRHEIN ET AL.
	Examiner	Art Unit
	Eric B. Kiss	2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 May 2005*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,7-9,11,13-15,17-19,21,24,27 and 28* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5,7-9,11,13-15,17-19,21,24,27 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some *   c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   The reply filed 16 May 2005 has been received and entered. Claims 1, 3-5, 7-9, 11, 13-

15, 17-19, 21, 24, 27, and 28 are pending.

Drawings

2.   The drawings were received on 16 May 2005. These drawings are acceptable.

Response to Amendment

3.   Applicant's amendments to the abstract appropriately address the objection to the

disclosure. Accordingly, this objection is withdrawn in view of Applicant's amendments.

4.   Applicant's amendments to the claims appropriately address the objections to the claims.

Accordingly, this objection is withdrawn in view of Applicant's amendments.

Response to Arguments

5.   Applicant's arguments with respect to claims 1, 3-5, 7-9, 11, 13-15, 17-19, 21, 24, 27, and

28 have been considered but are largely moot in view of the new ground(s) of rejection.

        However, the Examiner strongly disagrees with Applicant's argument that intermediate

code is typically machine-dependent.

"Compilers: Principles, Techniques, and Tools," 1986, by Aho et al. (a well-known and widely-referenced compilers text), devotes an entire chapter to machine-independent intermediate code generation, and further notes that such machine-independent intermediate languages have origins in research dating back to the mid 1950's (see the Bibliographic Notes on pp. 511-512).

Further, it is noted that in the particular system disclosed by Grossman et al., *the IR data element 64 contains an **intermediate representation** of the program that is independent of the particular language used for the source code 44 and **is also independent of the target processor on which the object code 46 will execute*** (see col. 6, lines 10-14; emphasis added). See further, Grossman et al., col. 6, lines 35-37 (as explicitly cited in the previous Office action): *The IR data element 64 and the instrumented IR data element 65 contain conventional **IR data that is both source and destination independent*** (emphasis added).

Claim Rejections - 35 USC § 103

6.   The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7.   Claims 1, 3-5, 7-9, 11, 13-15, 17-19, 21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,987,249 to Grossman et al. in view of U.S. Patent No. 6,513,154 to Porterfield.

As per claim 1, *Grossman et al.* discloses a device for editing a control program (see, for example, col. 5, lines 8-16), and a device for compiling the control program (see, for example, col. 5, lines 2-8), wherein the compiling device is used to produce from the control program an intermediate code which contains debug instrumentation for the control program (see, for example, col. 5, lines 25-43). *Grossman et al.* further discloses the intermediate code being microprocessor-independent (see, for example, col. 6, lines 35-37).

Grossman et al. fails to expressly disclose the editing device being used to mark an area of the control program for debugging.

However, *Porterfield* teaches the use of an editor to mark an area of a control program for debugging, which results in the selective generation of corresponding instrumentation (see, for example col. 17, lines 9-15).

Therefore, it would have been obvious to one of ordinary skill in the computer art at the time the invention was made to modify the apparatus of *Grossman et al.* to include such marking via an editor as per the teachings of *Porterfield*. One would be motivated to do so to reduce the overhead incurred by instrumenting code.

Grossman et al. further fails to disclose the use of two separate systems with separate compilers for implementing the prescribed apparatus. However, *Chan et al.* teaches that it has been known to employ a first compiler in a first system to produce an intermediate representation and to transfer this intermediate representation to another system having another compiler for transforming the intermediate representation into machine-dependent code (see, for example, see, for example, Fig. 2 and its associated text). Therefore, it would have been obvious to one of ordinary skill in the computer art at the time the invention was made to further modify the

system of *Grossman et al.* to include such separate systems/compilers. One would be motivated to do so to gain the advantages of facilitating installation of the developed software product on multiple platforms at multiple sites.

As per claim 3, *Grossman et al.* further discloses a data storage device for association information for associating the marked area of the control program with an area of the intermediate code (see, for example, col. 12, lines 45-51 and col. 18, lines 22-36). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claim 4, *Grossman et al.* further discloses an order unit for dispatching an observation order for the marked area (see, for example, col. 18, lines 37-54). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claim 5, *Grossman et al.* further discloses a reception device for receiving observation information (see, for example, col. 18, lines 47-54). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claim 7, *Grossman et al.* further discloses an observation module using the debug instrumentation (see, for example, col. 18, lines 37-54). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claim 8, *Grossman et al.* further discloses a data buffer for storing and providing observation information from the observation module (see, for example, col. 18, lines 47-54). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claim 9, *Grossman et al.* further discloses a device for receiving an execution order for the observation module (see, for example, col. 18, lines 47-54). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claim 21, *Grossman et al.* further discloses the control program being a cyclic control program (see, for example, col. 12, lines 39-44). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claims 11, 13-15, 17-19, and 24, these are method versions of the claimed apparatus discussed above (claims 1, 3-5, 7-9, and 21, respectively), wherein all limitations have been addressed as set forth above. For reasons stated above, such claims also would have been obvious.

8.   Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,987,249 to Grossman et al. and U.S. Patent No. 6,513,154 to Porterfield, as applied to claims 1 and 11 above, and further in view of U.S. Patent No. 5,784,621 to Onishi et al.

As per claims 27 and 28, in addition to the disclosure and teachings applied above, *Grossman et al.* fails to expressly disclose displaying the control program in a first window and the debug information in a second window. However, *Onishi et al.* teaches such a display of the control program and debug information within separate windows, *i.e.*, rectangular display regions (see, for example, Fig. 6 and its associated text). Therefore, it would have been obvious to one of ordinary skill in the computer art at the time the invention was made to further modify the system and method of *Grossman et al.* to include such simultaneous display of a control program and corresponding debug information. One would be motivated to do so to facilitate easier debugging by providing a visible context for the debugging information.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

10.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

        A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

11.   Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to Eric B. Kiss whose telephone number is (571) 272-3699. The

Examiner can normally be reached on Tue. - Fri., 7:00 am - 4:30 pm. The Examiner can also be
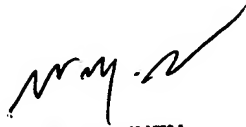
reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's

supervisor, Tuan Dam, can be reached on (571) 272-3695. The fax phone number for the

organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature should be directed to the TC 2100 Group receptionist:

571-272-2100.

EBK/EBK
July 28, 2005

WEI Y. ZHEN
PRIMARY EXAMINER